

Application Serial No. 10/606,209
Attorney's Docket No.:06618-476003

Amendment to the Claims:

This listing of claims replaces all prior versions, and listings, of claims in the application:

1. (Cancelled)

2. (Previously presented) A method of pumping a fluid, comprising causing a laminar outward flow in a fluid between a first rotating element and a second element, and directing the flow along grooves in the second element to pump the fluid along the grooves.

3. (Previously presented) A method as in claim 2, wherein said grooves on said second element are formed on inner surfaces of the second element, and are tilted in a direction of desired pumping.

4. (Previously presented) A method as in claim 2, wherein said directing a laminar flow comprises forcing flow from the first element into grooves on the inner surface of the second element.

Application Serial No. 10/606,209
Attorney's Docket No.: 06618-476003

5. (Previously presented) A method as in claim 4, further comprising increasing a force of pumping by increasing a speed of rotation of said first element.

6. (Currently amended) A method as in claim 4, further comprising spacing the first rotating element from the second ~~rotating~~ element by an amount that prevents substantial leakage between said grooves.

7. (Previously presented) A method as in claim 6, wherein said first rotating element has an outer surface which is substantially smooth and free of blades.

8. (Previously presented) A method as in claim 6, wherein said first rotating element has an outer surface which has a substantially constant diameter at all locations thereof.

9. (Currently amended) A method as in claim 2, further comprising bending the first rotating element and the second ~~rotating~~ element.

10. (Previously presented) A method as in claim 2, wherein said fluid is blood.

Application Serial No. 10/606,209
Attorney's Docket No.: 06618-476003

11. (Previously presented) A method as in claim 2, wherein said method is used for propulsion.

12. (Previously presented) A method of forming a blade less pump, comprising:

locating a first rotatable element within a second housing element, where the first rotatable element is formed without blades thereon, and the second housing element has inner surfaces defining a plurality of grooves, each of said grooves having a deeper portion which is further spaced from said first rotatable element and a less deep portion which is less spaced from said first rotatable element, and said grooves pointing in a specified direction; and

providing a rotating element for said first rotatable element which, when rotated, forces fluid in a direction.

13. (Previously presented) A method as in claim 12, wherein said providing a rotating element comprises attaching an element to an end of said first rotatable element.

Application Serial No. 10/606,209
Attorney's Docket No.: 06618-476003

14. (Previously presented) A method as in claim 12, wherein said providing a rotating element comprises forming a magnetic field to induce said first rotatable element to rotate.

15. (Cancelled)

16. (Previously presented) A method as in claim 12, wherein said locating a first rotatable element comprises locating an element which is substantially smooth on its outer surface.

17. (Previously presented) A method as in claim 12, wherein said rotatable element has bumps on its outer surfaces.

18. (Previously presented) A method, comprising:
introducing a fluid into an area of a central shaft that is formed without blades thereon, and an outer housing portion which includes grooves therein that are tilted in a specified direction; and

rotating said central shaft to force said fluid into said grooves and thereby pump said fluid.

Application Serial No. 10/606,209
Attorney's Docket No.: 06618-476003

19. (Previously presented) A method as in claim 18, wherein said rotating comprises attaching a rotating device to said central shaft.

20. (Previously presented) A method as in claim 18, wherein said rotating comprises magnetically rotating said central shaft.

21. (Previously presented) A method as in claim 18, further comprising bending at least a portion of said central shaft.

22. (Previously presented) A method as in claim 18, wherein said fluid is blood.

23. (Previously presented) A method as in claim 22, wherein said rotating causes a stagnation region within said blood.

24. (Previously presented) A method as in claim 18, wherein said central shaft and said outer housing portion include at least one area where minimal leakage between the grooves is allowed.

Application Serial No. 10/606,209
Attorney's Docket No.:06618-476003

25. (Previously presented) A method as in claim 18, wherein said central shaft has a substantially constant outer diameter.

26. (Previously presented) A system, comprising:

a first bladder pump, comprising a central shaft rotating in a first direction within an outer housing that includes inner grooves thereon, forcing fluid through said outer housing in a force direction when said central shaft is rotated in said first direction; and

a second blade less pump assembly, located facing in a same direction as said first bladeless pump and comprising a central shaft, without blades, rotating in a second direction opposite to said first direction within an outer housing that includes inner grooves thereon, forcing fluid through said outer housing in said force direction when said central shaft is rotated in said second direction.

27. (Currently amended) A system as in claim 26, wherein said central shaft of said first assembly and said central ~~shaft~~ shaft of said second assembly are each substantially smooth outer surfaces.